



State of Washington  
REPORT OF EXAMINATION  
FOR WATER RIGHT APPLICATION

File No. G2-29303  
WAC Doc ID: 2221245

PRIORITY DATE  
October 13, 1995

APPLICATION NUMBER  
G2-29303

MAILING ADDRESS  
City of Elma  
PO Box E  
Elma, WA 98541

SITE ADDRESS (IF DIFFERENT)

**Quantity Authorized for Withdrawal or Diversion**

DIVERSION RATE	UNITS	ANNUAL QUANTITY (AF/YR)
1,000	gpm	321

**Purpose**

PURPOSE	WITHDRAWAL OR DIVERSION RATE			ANNUAL QUANTITY (AF/YR)		PERIOD OF USE (MM/DD)
	ADDITIVE	NON-ADDITIVE	UNITS	ADDITIVE	NON-ADDITIVE	
Municipal Water Supply	--	1,000	gpm	321		01/01-12/31

**Source Location**

WATERBODY	TRIBUTARY TO	COUNTY	WATER RESOURCE INVENTORY AREA
Well 4 (Groundwater)	N/A	Grays Harbor	22

SOURCE FACILITY/DEVICE	PARCEL	TWN	RNG	SEC	QQ Q	LATITUDE	LONGITUDE
Well 4	180633420080	18N	6W	33	NE/SE	47.000722	-123.435889

Datum: WGS84

**Place of Use (See Map, Attachment 1)**

**LEGAL DESCRIPTION OF AUTHORIZED PLACE OF USE**

Area served by the City of Elma as described in a Department of Health approved Water System Plan. See also RCW 90.03.386(2). RCW 90.03.386 may have the effect of revising the place of use of this water right.

**Proposed Works**

Well 4 was drilled and tested in 1977 by Armstrong Drilling Inc. The well is 16-inches in diameter. It was drilled to a depth of 102 feet below ground and completed with a 16-inch, telescopic, 150-slot, stainless

steel screen at depths from 60 to 81.5 feet below ground. Well 4 is plumbed into the City's distribution system to supply water to municipal customers.

Development Schedule		
BEGIN PROJECT	COMPLETE PROJECT	PUT WATER TO FULL USE
Started	September 1, 2020	September 1, 2034
Measurement of Water Use		
• How often must water use be measured?	Monthly	
• How often must water use data be reported to Ecology?	Annually (Jan 31)	
• What volume should be reported?	Total Annual Volume	
• What rate should be reported?	Annual Peak Rate of Withdrawal (gpm)	
Provisions		

### Mitigation

WDFW staff understand that any groundwater withdrawals have potential of affecting surface water flow, however these effects are small and difficult to quantify or provide appropriate flow mitigation for given the small quantities and difficulties of finding appropriate places to introduce water.

The City has proposed two actions that are designed to address any concerns regarding habitat in the vicinity of Vance Creek. First the City proposes to abandon the use of Wells 1 and 2 as supply sources in favor of deeper sources that are expected to have less impact on the shallow surface water system. The wells will be decommissioned in accordance with State Regulations regarding the construction of wells. Elma will provide documentation to Ecology when the decommissioning occurs.

Secondly, the City has proposed to donate a parcel of land located in the lower drainage of Vance Creek to WDFW. The property encompasses about 1.5 acres. This area is undeveloped and is located contiguous to the WDFW's Chehalis Wildlife Area property, which is accessed off of Schouweiler Road.

The direct donation of land is intended as a habitat-for-water trade, intended to offset any effect to the surface water drainage by allowing the property to be protected and managed in favor of naturally occurring flows. Elma will provide documentation to Ecology when this land donation occurs.

### Measurements, Monitoring, Metering and Reporting

An approved measuring device shall be installed and maintained for each of the sources identified by this water right in accordance with the rule "Requirements for Measuring and Reporting Water Use," WAC 173-173, which describes the requirements for data accuracy, device installation and operation, and information reporting. It also allows a water user to petition the Department of Ecology for modifications to some of the requirements.

Recorded water use data shall be submitted via the Internet. To set up an Internet reporting account, contact the Southwest Regional Office. If you do not have Internet access, you can still submit hard copies by contacting the Southwest Regional Office for forms to submit your water use data.

### **Water Use Efficiency**

Use of water under this authorization shall be contingent upon the water right holder's maintenance of efficient water delivery systems and use of up-to-date water conservation practices consistent with established regulation requirements and facility capabilities.

### **Proof of Appropriation**

The water right holder shall file the notice of Proof of Appropriation of water (under which the certificate of water right is issued) when the permanent distribution system has been constructed and the quantity of water required by the project has been put to full beneficial use. The certificate will reflect the extent of the project perfected within the limitations of the permit. Elements of a proof inspection may include, as appropriate, the source(s), system instantaneous capacity, beneficial use(s), annual quantity, place of use, and satisfaction of provisions.

### **Schedule and Inspections**

Department of Ecology personnel, upon presentation of proper credentials, shall have access at reasonable times to the project location, and to inspect at reasonable times records of water use, wells, diversions, measuring devices and associated distribution systems for compliance with water law.

### **Findings of Facts**

Upon reviewing the investigator's report, I find all facts, relevant and material to the subject application, have been thoroughly investigated. Furthermore, I concur with the investigator that water is available from the source in question; that there will be no impairment of existing rights; that the purpose(s) of use are beneficial; and that there will be no detriment to the public interest.

Therefore, I ORDER approval of Application No. G2-29303, subject to existing rights and the provisions specified above.

### **Your Right To Appeal**

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

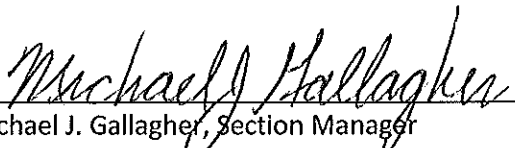
To appeal you must do the following within 30 days of the date of receipt of the Order.

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

Street Addresses	Mailing Addresses
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503  <b>Pollution Control Hearings Board</b> 111 Israel RD SW STE 301 Tumwater, WA 98501	<b>Department of Ecology</b> Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608  <b>Pollution Control Hearings Board</b> PO Box 40903 Olympia, WA 98504-0903

Signed at Olympia, Washington, this 22<sup>nd</sup> day of October 2015.

  
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Michael J. Gallagher, Section Manager  
Water Resources Program/SWRO  
Department of Ecology

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## BACKGROUND

On October 13, 1995, the **City of Elma** (City) filed an *Application for Water Right Permit* for their existing Well 4 source with the State Department of Ecology (Ecology). The City's 1995 application requested an instantaneous withdrawal rate (Qi) of 1,000 gallons per minute (gpm) and an annual quantity (Qa) of 1,086 acre-feet per year (af/yr). Subsequent to filing application G2-29303, the City evaluated their existing water rights and modified the requested Qa for Well 4 to 321 af/yr. The requested quantities in application G2-29303 will not increase the Qi for Well 4, but will increase the Qa to meet future projected demands.

**Table 1. Summary of Application No. G2-29303**

Attributes	Proposed
Applicant	City of Elma
Application Received	October 13, 1995
Instantaneous Quantity	1,000 gpm
Source	Well 4
Purpose of Use	Municipal supply
Period of Use	Year-round as needed
Place of Use	Area served by City of Elma as described in a Department of Health approved Water System Plan. RCW 90.03.386 may have the effect of revising the place of use of this water right

This application has been processed under Ecology's Cost Reimbursement Program. Pacific Groundwater Group (PGG) prepared this report of examination under contract to Ecology. PGG attended a site visit and reviewed available documents pertaining to this and other related *Applications for Water Right*, including hydrogeologic and well construction reports, historical water use, stream flow conditions, and standing of existing rights.

Under the provisions of RCW 90.03.290 and 90.44, a water right may be issued upon findings that water is available for appropriation for a beneficial use, and that the appropriation will not impair existing rights or be detrimental to the public welfare. In accordance with these provisions, I recommend issuance of Permit G2-29303.

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## LEGAL REQUIREMENTS FOR APPLICATION PROCESSING

The following requirements must be met prior to processing a water-right application.

### Public Notice

A public notice of the proposed appropriation was published in *The Vidette* of Montesano, Washington on July 16<sup>th</sup> and 23<sup>rd</sup> 2015. No protests were received as a result of this notice.

### **State Environmental Policy Act (SEPA)**

A groundwater right application is subject to a SEPA threshold determination (i.e., an evaluation of whether there are likely to be significant adverse environmental impacts) if one of the following conditions is met.

- It is an application for more than 2,250 gpm
- It is an application that, in combination with other water right applications for the same project, collectively exceeds the amount above
- It is a part of a larger proposal that is subject to SEPA for other reasons (e.g., the need to obtain other permits that are not exempt from SEPA)
- It is part of a series of exempt actions that, together, trigger the need to make a threshold determination, as defined under WAC 197-11-305

None of these situations apply to this application. Accordingly, the subject application is categorically exempt under SEPA (WAC 197-11-305 and WAC 197-11-800(4)).

### **Water Resources Statutes and Case Law**

Under the provisions of RCW 90.03.290 and 90.44.050, a water right shall be issued upon findings that water is available for appropriation for a beneficial use and that the appropriation, as proposed in the application, will not impair existing rights or be detrimental to the public welfare.

This application has been processed under Ecology's Cost Reimbursement Program. Based on the provisions of RCW 43.21A.690 and RCW 90.03.265, PGG prepared this report under contract to Ecology.

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## **INVESTIGATION**

Evaluation of this application included, but was not limited to, research and/or review of the following:

- Gibbs and Olsen, Inc., 2013. City of Elma Water System Plan Update. February 2013.
- Robinson Noble, Inc., 2004. Logan Production Well near Elma. Letter report to Mr. Mike Olden of Gibbs and Olsen. October 2004.
- Robinson Noble, Inc., 2013. City of Elma Shallow Groundwater Investigations Report of Findings. February 2013.
- Robinson Noble, Inc., 2013. City of Elma Application for New Water Right G2-29303 Phase 1 Water Right Assessment. September 2013.
- Robinson Noble, Inc., 2014. Surface Water Impact Assessment in Support of the City of Elma Mitigation Offer. April 2014.
- Washington State Conservation Commission, 2001. Salmon and Steelhead Habitat Limiting Factors, Chehalis Basin and nearby Drainages, Water Resource Inventory Areas 22 and 23. May 2001.
- Washington State Department of Ecology records of surface and groundwater rights and claims in the vicinity of the subject production wells.  
<https://fortress.wa.gov/ecy/waterresources/map/WaterResourcesExplorer.aspx>

- Washington State Department of Ecology water well logs in the vicinity of the subject production well. <https://fortress.wa.gov/ecy/waterresources/map/WCLSWebMap/default.aspx>

A field visit was conducted by Jill Van Hulle, PGG, with Jim Stark, City of Elma Public Works Director, on February 19, 2015. Ms. Van Hulle visited the City's wells, wastewater treatment plant, and the surrounding area.

### **Project Description**

The intent of this application is to secure a new water right for the City's Well 4 to increase the authorized annual withdrawal quantity. The well is currently in use as authorized by a previously issued water right, and the instantaneous rate of withdrawal will not increase beyond the currently approved 1,000 gpm. The City is requesting an additional annual withdrawal of 321 af/yr in order to meet their projected demand.

### **Site Description**

The City of Elma lies within the lower Chehalis River Valley and Water Resource Inventory Area (WRIA) 22 in Grays Harbor County, approximately 20 miles east of Aberdeen and 30 miles west of Olympia. In the vicinity of the City, the river valley has been partially filled with terrace and floodplain deposits. The elevation of the valley near the City is approximately 20 to 65 feet above sea level. It is bordered by bedrock uplands to the north and south, which rise to over 400 feet above sea level.

The Chehalis River basin is within Water Resource Inventory Areas (WRIAs) 22 and 23, and includes parts of Lewis, Thurston, Cowlitz, Pacific, Grays Harbor, and Mason Counties. The total drainage area of the basin is 2,680 square miles, of which approximately 84 percent is forest lands and approximately 7-percent (187 square miles) is in agriculture.

Tributaries to the Chehalis River drain from the Olympic Mountains to the north and the Black Hills to the southeast. The Satsop River is the largest of these tributaries. It is a shorter, higher energy river, than the Chehalis, and drains the southern portion of the Olympic Mountains. The City is approximately four miles northeast of the Satsop River's confluence with the Chehalis River. Vance Creek is also tributary to the Chehalis River. City Wells 4 and 5 are located within the Vance Creek basin, approximately 5.5 and 6.5 miles upstream of the Chehalis River confluence respectively.

The City owns and operates a municipal water system that serves the City and surrounding areas. The water system (Washington State Department of Health System ID 23100C) currently serves about 3,600 full-time residents and as many as 15,000 transient users. Based on the 2013 Comprehensive Water System Plan, the City projects a high end population of about 4,400 residents by 2032.

The City also provides wastewater collection and treatment. The collection system is predominantly gravity pipe. The treatment plant removes solids and grit removal and treatment through aeration basins and secondary clarifiers. The treatment plant discharges to the Chehalis River at river mile 24.3.

### **Water Rights Appurtenant to the Place of Use**

The City of Elma currently holds three water rights allocating a total instantaneous withdrawal of 2,010 gpm and a cumulative annual allocation of 672 af/yr. The additive/non-additive allocations authorize the annual quantity to be produced from various combinations of the City wells. The water rights are summarized below.

**Table 2. Summary of City of Elma Water Rights**

Water Right	Source	QI (gpm)	Qa (af/yr)	
			Primary	Non-Additive
17-D	Well 1 and 2	260	422	
5867-A	Well 3 and 5	750	138	422
G2-24632	Well 4	1,000	112	560
<b>Totals:</b>		<b>2,010</b>	<b>672</b>	

The rights as currently configured allow the City to pump the full 672 af/yr from Well 4. However, Well 4 lacks a full corrosion control system and is therefore not used to that extent. The City currently uses the Well 3 and 5 wellfield to produce most of its water.

### **Hydrogeologic Evaluation**

#### ***Local Hydrogeology***

The geology of the lower Chehalis River valley is best described as a large, partially-sediment filled channel cut into the Tertiary sedimentary rocks (marine shale and sandstone). The unconsolidated materials partially filling the channel are a complex mixture of fluvial sediments, deposited in both high- and low-energy regimes associated with historic periods of glaciation and interglaciation.

The sediments deposited during high energy periods are composed of significant gravel deposits that form highly productive aquifers where saturated. These gravel deposits vary in thickness and are often underlain and overlain by finer-grained floodplain deposits from past and current alluvial depositional environments. Some sediments were also contributed by the tributaries to the Chehalis. The result is that sediment permeability varies both vertically and laterally throughout the entire valley regime.

Although the aquifer may be confined in portions of the valley where layers of silt and clay are present near land surface, there are many other areas where coarser deposits extend to land surface and provide hydraulic connections between groundwater and surface water.

#### ***Site Conditions***

The City's Well 4 was installed and tested by Armstrong Drilling in 1977. The well, which is 16-inches in diameter, was drilled to a depth of 102 feet below ground and completed with a 16-inch telescopic stainless steel screen between 60 and 81.5 feet below ground. The well is completed in a shallow alluvial aquifer that underlies most of the Chehalis River Valley. The aquifer is composed of coarse sand and gravel that extends from 34 to about 82 feet at the site and at comparable depths in other areas of the valley. The aquifer is overlain by clay-bound sand and gravel deposits above 34 feet and underlain by tighter packed sand and gravel deposits below 82 feet.

The well had a static water level of about 15.5 feet below the top of the casing at the time of construction. The well was originally tested for 3 hours at a pumping rate of 1,035 gpm and showed a total of 4 feet of drawdown for a specific capacity of almost 260 gpm/ft. The well recovered to within 0.1 feet of its original static within 12 minutes of shutdown. The testing indicated that the aquifer was very permeable and capable of supporting high well yields, unfortunately the testing was not adequate



to fully define the characteristics of the aquifer or boundary influences that might help to define connections with nearby surface water bodies.

For the purposes of this application, Well 4 was retested in January 2015 to better define aquifer properties and boundary influences associated with possible leakage and connections with nearby surface water bodies. Well 4 was retested for 7.8 hours at an average pumping rate of 1,010 gpm. Water levels were monitored in Well 4, the Martin well located approximately 1,670 feet to the east, and the Bayview Pond. Water levels in both wells began to stabilize after about 100 minutes of pumping, likely related to leakage from shallow groundwater that overlies the primary valley aquifer. Drawdown in Well 4 at the end of the pumping period was about 3.5 feet, which corresponds to a specific capacity estimate of almost 290 gpm/ft. The estimated transmissivity of the aquifer based on this test is 1,550,000 gallons per day per foot (gpd/ft), which is very high. The early-time storage coefficient of 0.0002 suggests confined conditions; however, over longer term periods of pumping the system will likely behave as an unconfined system with the storage coefficient approaching a drainable porosity of 0.1 to 0.2.

#### ***Groundwater/Surface Water Interactions***

Water levels and temperatures were monitored by the City's consultants Robinson Noble between November 2014 and January 2015 to further evaluate the relationship between groundwater and surface water in the vicinity of Well 4. Continuous data were collected in Well 4, the Martin well, and the Bayview Pond using transducers. Groundwater and surface water level trends were generally well correlated and are heavily influenced by precipitation. The water level data suggest a high degree of hydraulic connection between the groundwater system that supplies water to Well 4 and nearby surface water features. Temperature trends in Well 4 closely correlated with temperatures in Bayview Pond, further indicating a high degree of hydraulic connection between the groundwater and surface water systems.

#### **Impairment Considerations**

##### ***Impairment of Minimum Instream Flow Water Rights***

"Instream flow" is a specific stream flow (typically measured in cubic feet per second, or cfs) at a specific location for a defined time, and typically following seasonal variations. Instream flows are usually defined as the stream flows needed to protect and preserve instream resources and values, such as fish, wildlife and recreation. Instream flows are most often described and established in a formal legal document, typically an adopted state rule.

Once established, a minimum flow constitutes an appropriation with a priority date as of the effective date of the rule establishing the minimum flow (RCW 90.03.345). Thus, a minimum flow set by rule is an existing right which may not be impaired (RCW 90.03.345; RCW 90.44.030).

Under the provisions of WAC 173-522/23, an Instream Resource Protection Plan has been adopted for the Chehalis River and its tributaries. The rule established instream flows for the Chehalis River and closed certain tributaries to any additional consumptive withdrawals. These restrictions apply to groundwater withdrawals in addition to surface water. Under the rule, Ecology's decisions on future permitting actions related to groundwater withdrawals must consider the natural inter-relationship of surface and groundwater.

The portion of the Chehalis River potentially affected by WAC 173-522 is defined as the Chehalis River below the confluence with the Satsop River, which includes the Chehalis from Porter Creek (located at RM 33) to just below the confluence with the Satsop River. Withdrawals below the Satsop gage were considered to be under tidal influence in the WAC.

Minimum instream flows (MISF) as established by WAC at Satsop range from as low as 550 cfs during late summer/early fall to as much as 3,800 cfs during winter and early spring.

A review of available data shows streamflows at the Satsop River control point are generally met during most years, with a few exceptions during winter months. However, flow data at this control point has only been collected since 2008.

To determine historic MISF exceedance at the Satsop control point, a regression analysis was performed using flows at the Porter gage. This analysis shows MISF are largely met at Satsop with no violations from August through October, when stream flows are lowest and the City's water demand is highest. The largest number of inferred violations occurred during the month of May when MISF range between 2,300 to 2,910 cfs which corresponds to a typically low water demand month for the City.

#### Potential Impairment to the Chehalis River

WAC 173-522/23 limits future withdrawals to either statutory instream flows or tidally influenced reaches. Therefore, surface water capture from pumping Well 4 would need to be below the City's outfall discharge point in order not to be subject to the provisions of this WAC.

The intent of selecting the confluence with the Satsop River as a control point was that it was believed to represent the extent of tidal influence. However, river stage data for the Chehalis River collected during a wastewater outfall investigation showed the extent of tidal influence to be further upstream.<sup>1</sup> Based on the technical analysis performed by PGG, impacts from pumping Well 4 are limited to the Chehalis River, below the wastewater outfall.

Take note, the City returns roughly 30% of the water pumped to the river during the summer months at the outfall and up to 50% the remainder of the year. Because such a significant amount of water is put back into the river, any physical flow reduction from a new withdrawal is greatly reduced<sup>2</sup>. Groundwater withdrawals from Well 4 in excess of what is treated and returned to the Chehalis River via the City's wastewater treatment system outfall will result in diminished flows in the Chehalis River.

#### Vance Creek Impacts

Vance Creek is not specifically regulated by WAC 173-522/23. However, Ecology is mandated to address potential impacts of new appropriations on all surface water bodies and assess whether any changes will occur that are inconsistent with the intent of the WAC and instream flow protection plan established for the basin.

There are no detailed flow records available for Vance Creek. Given the coarse grained nature of the aquifer in the vicinity of Well 4 and the absence of a significant overlying confining unit, PGG expects

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<sup>1</sup> Stage readings collected by the City near outfall discharge point during the summer of 2010 confirmed the presence of significant tidal signatures.

<sup>3</sup> The City of Elma's wastewater treatment plant discharges highly treated return flow to the Chehalis River and utilizes ultraviolet lights to disinfect the final effluent, eliminating the need to use chlorine gas.

that groundwater withdrawals from the well have the potential to capture flow from Vance Creek. The capture however, would be attenuated by the storage characteristics of the aquifer and the offset from the stream, as well as any finer grained soils that might underlay the creek bed. Flow impacts would be further attenuated by the abundance of surface water that occurs throughout the valley near Elma and the high rates of underflow that occur within the valley aquifer systems. Finally, given the low gradient of Vance Creek as it transverses across the Chehalis River floodplain, it is anticipated that the lower stretches are also tidally influenced.

A review of published reports for the Vance Creek area does not list low flows as a primary area concern. Vance Creek in the vicinity of Well 4 suffers primarily from manmade problems such as poor riparian buffers, inadequately designed culverts and channelization of the natural stream. PGG doesn't anticipate that increase in use of Well 4 will result in any significant impact to Vance Creek.

#### WDFW Comments and Mitigation

This application and an outline of the City of Elma's proposed withdrawals was provided to the Department of Fish and Wildlife for comment. Based on the information provided to them, WDFW staff understand that any groundwater withdrawals have potential of affecting surface water flow, however these effects are small and difficult to quantify or provide appropriate flow mitigation for given the small quantities and difficulties of finding appropriate places to introduce water.

The City has proposed two actions that are designed to address any concerns regarding habitat in the vicinity of Vance Creek. First the City proposes to abandon the use of Wells 1 and 2 as supply sources in favor of deeper sources that are expected to have less impact on the shallow surface water system. The wells will be decommissioned in accordance with State Regulations regarding the construction of wells.

Secondly, the City has proposed to donate a parcel of land located in the lower drainage of Vance Creek to WDFW. The property encompasses about 1.5 acres. This area is undeveloped and is located contiguous to the WDFW's Chehalis Wildlife Area property, which is accessed off of Schouweiler Road.

The direct donation of land is intended as a habitat-for-water trade, intended to offset any effect to the surface water drainage by allowing the property to be protected and managed in favor of naturally occurring flows. DOFW has indicated that there are problems other than flow that contribute to the degraded habitat in the Vance Creek drainage (invasive weeds, lack of riparian vegetation, and cattle), and the donation of land to WDFW for preservation and management will allow for additional habitat to be protected.

WDFW's Chehalis unit is 531 acres located southwest of Elma. This unit is maintained for waterfowl habitat and associated recreation. Most of the land owned by WDFW is open wetland, riparian shrub habitat, or meadow/field habitat. Wildlife species known to exist in the area include the Olympic mud minnow, mink, shorebirds, wood duck, waterfowl, trumpeter swan, and osprey. Limited farming activities in the area improves waterfowl forage and use of the area as does efforts to increase open water habitat.

WDFW has requested that Wells 1 & 2 be completely decommissioned before taking ownership of the property, and that any access to the property be blocked to minimize access and vandalism.

### **Potential Impairment to Groundwater Users**

PGG evaluated potential to impair existing groundwater users by using the Aqtesolv™, an aquifer test analysis software program, to estimate drawdown caused by pumping Well 4 at radial distances from the well. Aquifer properties estimated from recent well testing were inputs to the analysis. At a continuous Well 4 pumping rate of 1,010 gpm, the estimated total interference drawdown is less than 0.5 feet beyond 300 radial feet from the City's well. This level of interference drawdown will not adversely impact existing wells in the area, which generally lie beyond this distance from the City's supply sources. The interference impacts are limited given the highly transmissive nature of the supply aquifer and the leaky aquifer conditions, which attenuate drawdown in vicinity of the pumping centers.

The nearest water rights in proximity to Well 4 are those owned by the Martin family (as the Willis and Joan Martin Family, LLC). The Martins own multiple water rights and operate a farming operation approximately 1,670 feet east of Well 4. Based on the distance-drawdown analysis, the estimated interference drawdown this distance from Well 4 is less than 0.25 feet. The Martin's primary irrigation well, Well 1, was used as an observation well during the recent Well 4 test and less than 0.3 feet of drawdown was observed after 7.8 hours of pumping.

To date, the Martins have raised corn, other row crops, and peas on their 120 acres of farm land and plan to grow organic green beans. The remainder of the farm is in pasture, or separated into paddocks. The Martins raise cattle, llamas, yaks, and Watusi cattle, and supply the animals with food grown on the farm.

In 2000 a series of *Applications for Change* were filed to modify several of the Martin's water rights. Ecology reviewed the Martin's various rights in conjunction with the change, and found them to be in good-standing. The following water rights (including modified water rights) are appurtenant to the Martin property:

**Table 3. Summary of Martin Family Water Rights**

	<b>Withdrawal Rate (gpm)</b>	<b>Annual Quantity (af/yr)</b>	<b>Acres Irrigated</b>
Certificate of Ground Water Right 13-A	80	10	10
Certificate of Ground Water Right 7105-A	220	52	33
Certificate of Water Right 2110	150	26	80
Certificate of Surface Water Right S2-00061C*	150 (s)	26	80 (s)
<b>Total from Wells 1A and 2</b>	<b>450</b>	<b>88</b>	<b>123</b>
Certificate of Ground Water Right 917-A	200	55	37
Certificate of Ground Water Right 7106-A	200	80	107
<b>Total from Well 2</b>	<b>400</b>	<b>135</b>	<b>107</b>

\*s: supplemental to existing rights, irrigated acres are not additive  
Limited to 223 af/yr under all rights

At approximately the same distance (1,600 feet) and to the northeast, the Elma School District has a 61-foot deep irrigation well that is authorized by certificate G2-00498. At this radius, the estimated interference drawdown is less than 0.25 feet.

There are other irrigation wells and corresponding water rights located to the south and east of Well 4; however, none are located any close than the school well therefor are not in close enough proximity to be effected by the City's operations.

#### Quantities for Permit

As part of their water system planning process, the City of Elma reviewed Washington State Office of Financial Management data, previous planning documents and other water use trend. The growth rate and need for new water to supply new development has historically been low (over the past 50 years about 1%). Additionally the City has undertaken major conservation efforts which have further reduced the long-term demand projections. The City projects needing to meet an Average Daily Demand (ADD) of approximately 886,690 in a 40 year planning horizon. This equates to a total of 993 af/y. Since the City already holds rights to 672 af/yr, they need an additional 321af/yr to meet their future demand.

As tabulated below, the City currently operates the system by pumping 112 af/yr from Well 4 and producing 280 af/yr from both Wells 3 and 5. The City is applying for an additional 321 af/yr, for a total of 993 af/yr. With the issuance of the new permit and installation of the additional treatment needed at Well 4, production from Well 4 is expected to increase to approximately 450 acre-feet with the balance being split roughly between Wells 3 and 5.

**Table 4. City of Elma's Proposed Supply Well Production**

Source	Current Qa (af/yr)	Proposed Qa (af/yr)
Well 1 and 2	Emergency use only	decommission
Well 3	280	271.5
Well 5	280	271.5
Well 4	112	450
<b>Total</b>	<b>672</b>	<b>993</b>

Wells 1 and 2 have been retained as back-up supplies, but they will likely be decommissioned with the issuance of a new permit for Well 4. While the annual quantities associated with these wells have already been effectively transferred to the City's other sources through a series of decisions that allow non-additive use in lieu of operating Wells 1 and 2, the instantaneous quantity should be transferred to Well 5, which has additional capacity.

#### Priority Processing

RCW 90.03.265(2) provides that, in pursuing a cost-reimbursement project, the Department must determine the source of water from which the water is proposed to be diverted or withdrawn, including the boundaries of the area that delimit the source. The Department must determine if any other water-right applications are pending from the same source. A water source may include surface water only, groundwater only, or surface and groundwater together, if the Department finds they are hydraulically connected. The Department shall consider technical information submitted by the applicant in making its determinations under this subsection.

RCW 90.03.265(1)(b) provides that the requirement for an applicant to pay for the processing of senior applications does not apply in situations where the water allocated to one party will not diminish the water available to a senior applicant from the same source. Because there are no other pending groundwater applicants that will be affected by the requested allocation, this application can be processed prior to other pending applications.

#### **Four Statutory Tests**

This Report of Examination (ROE) evaluates the application based on the information presented above. To approve the application, Ecology must issue written findings of fact and determine that each of the following four requirements of RCW 90.03.290 has been satisfied:

1. Water is available. *Well 4 is productive and with treatment, will be a productive supply source for the City.*
2. No impairment to other right holders or instream flows will occur. *Existing water rights including surface waters subject to instream flow rules (WAC 173-522 and WAC 173-523) are not anticipated to be impaired by the proposed withdrawals. Well 4 is within the tidally influenced portion of the Chehalis River basin, which would further limit any impacts to the main stem associated with the City water withdrawals.*
3. Beneficial use. *Use of the water by the City of Elma for municipal purposes is considered a beneficial use, (RCW 90.14.031).*
4. Water Resources Act of 1971. *The issuance of this permit is consistent with RCW 90.54 (Water Resources Act of 1971), which requires allocation of water in a manner that preserves instream resources, protects the quality of water, and provides adequate and safe supplies of the state and its citizens. The use of the water by the City of Elma is not detrimental to the public welfare and will enable the City to meet the water supply needs of its service area consistent with its approved water system plan.*

#### **CONCLUSIONS**

The conclusions based on the above investigation are as follow:

1. The proposed appropriation for municipal supply is a beneficial use of water,
2. The requested quantity of 1,000 gpm (non-additive) and 321 af/yr is available for appropriation,
3. The appropriation will not impair senior water rights, and
4. The appropriation will not be detrimental to the public interest.

#### **RECOMMENDATION**

Based on the information presented above, the author recommends that the request to appropriate 321 af/yr be approved in the amounts described, limited, and provisioned on page 1 through 3 of this report.

Reported by: Jill E Van Hulle 10/15/2015  
Jill Van Hulle, Pacific Groundwater Group Date



Daniel T. Matlock  
Daniel T. Matlock

Reported by: Dan Matlock, Pacific Groundwater Group 10/15/2015  
Date

Reviewed by: Tammy Hall 10/15/2015  
Tammy Hall, Water Resources Program Date

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REPORT OF EXAMINATION





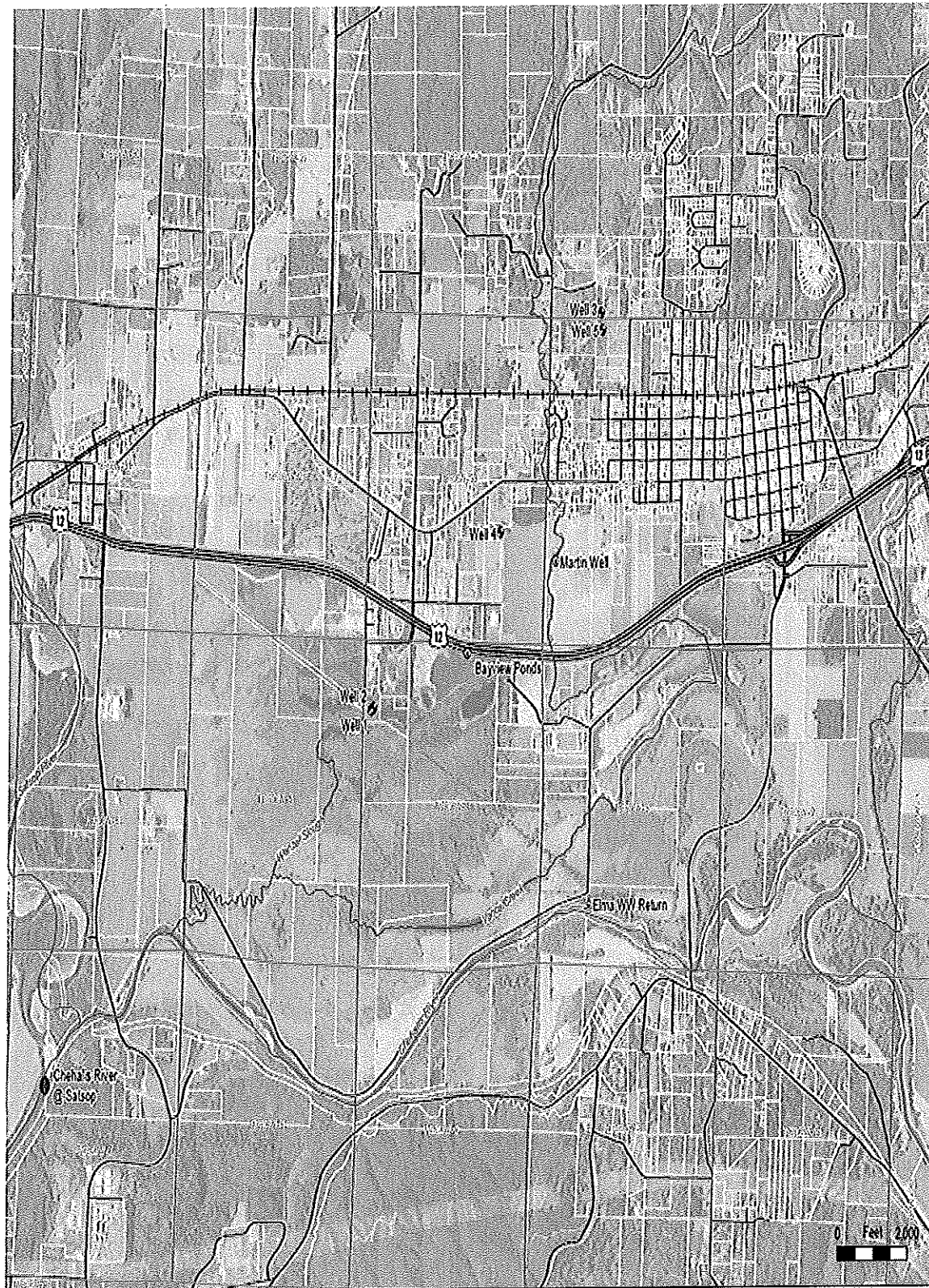
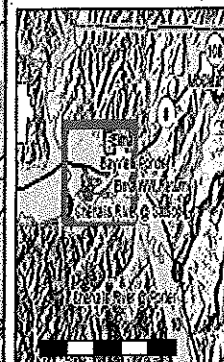


Figure 1

Site Plan & Vicinity Map  
Elma WA

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- City Wells
- Stream Gauge/MISF Control Point
- City Outfall
- Pump Test Monitoring Site
- Sections

